

Abstract of the Disclosure

A biosensor for detecting a bioeffecting substance in a test sample includes a cell network of at least one electrically excitable cell provided on a substrate in a predetermined geometry with a predefined axonal/dendritic polarity. The at least one cell is capable of producing a signal in response to the presence of the bioeffecting substance. At least one signal transducer is provided with the substrate in a predetermined geometry and is capable of detecting the signal produced by the cell. A culture medium capable of supporting metabolism of the cell is also provided.